

tration of the filtrate, and at times showed some loss of appetite. There was never a fever, however, and no prostration. The filtrates, though slightly toxic, were practically non-pathogenic.

On intranasal instillation of a mixture of the influenza-like bacillus and the filtrate, however, typical prostration and fever are produced, with a mortality of about 10 per cent. Since the filtrate contains an apparently self-propagating transmissible agent, Doctor Shope was forced to the conclusion that this is a true composite infection, a "synergism"<sup>3</sup> between a bacterium and a filterable virus.

Doctor Shope's conclusion is of basic clinical interest, since somewhat similar "bivalent" or "synergistic" etiologies have been suggested though not yet proved for scarlet fever, whooping-cough, human influenza, and "malignant diphtheria." The latest suggestion along this line is that infantile paralysis is a "duplex" infectious disease; a neurotropic virus "accelerated" by certain toxin-producing enteric micro-organisms.<sup>4</sup>

Doctor Shope found that the immunity acquired, as a result of a natural or artificial infection with "hog flu," is apparently not bivalent but monovalent in character. Vaccination with the bacillus alone produces no symptoms and confers no immunity. Carrier conditions may be established. Vaccination with the filtrate alone, while producing no very apparent symptoms, leads to effective humoral immunity.

In its practical epidemiology, the simultaneous transfer of both bacillus and virus to a healthy herd produces a typical epidemic, often prostrating 100 per cent of the herd. Fortuitous transfer of the virus alone, or of the virus associated with a non-coöperating type of the "hog flu" bacillus, may cause a cryptic epidemic with no apparent symptoms. This cryptic infection, however, leads to an effective immunity. Accidental recombination of virus and suitable bacillus during such an unrecognized epidemic, however, may cause the spontaneous appearance of prostrating symptoms in an apparently healthy herd.

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### THE PHYSICIAN AS A CITIZEN

The proper attitude of the physician toward the duties and responsibilities of citizenship is a many-sided question. Is there any sufficient reason why he should be considered, or consider himself, in a class separate from other men with reference to the obligations of organized society? Certainly not. Yet something may be said in defense of the course he has so long followed, and for which he is so often criticized and condemned.

<sup>1</sup> Lewis, P. A., and Shope, R. E.: *J. Exper. Med.*, 54:361, 1931.

<sup>2</sup> Shope, R. E.: *Ibid.*, 54:373, 1931; 56:575, 1932; 59:201, 1934.

<sup>3</sup> Holman, W. L.: *The Newer Knowledge of Bacteriology and Immunology*, Chapter VIII, p. 103. University of Chicago Press, 1928.

<sup>4</sup> Toomey, J. A.: *Proc. Soc. Exp. Biol. and Med.*, 31:1015 (May), 1934.

The word duty is as big and sacred to the physician as to any other man. But his interpretation of it may be, in the nature of things often must be, gauged by a different standard. No other class of men, for instance, is the recipient of the intimate confidences of individual and family life which constitute a part of the physician's daily routine. Health, happiness, life itself, lie at the heart of the issues that make up the sum of his professional existence. There is some reason why the problems which seem to him most important should be those relating to his "cases," rather than to society in general. And from the standpoint of those "cases" this is as it should be. It is perfectly natural that the public should regard with misgiving any physician who concerns himself unduly with politics, sport, or similar pursuits.

But no line of argument can establish the claim that the physician's whole field of vision should be contracted to the work by which he earns his daily bread. He lives under the protection of law and participates in the advantages of a highly developed social system, and solemn obligations to nation, state, and community are due from him as from other men. The position can not be sustained that the medical man is justified in an attitude of evasion and aloofness by which his neighbor must bear a double burden, or the general welfare suffer. Such an attitude can not fail to be a factor in the perversion of law and the demoralization of politics.

It is specious reasoning for the physician to plead the exactions of his practice as an excuse for failure to exercise his suffrage, or to exhibit a becoming concern in the administration of public affairs. The lawyer is engaged with his clientele, the pastor with his flock, the merchant with the details of his business; yet to none of these can it be justly imputed that he habitually ignores the call of civic duty.

Admittedly, the fundamental condition of all social and material prosperity is the health and vigor of the people. The problems of disease in large measure have been solved—in theory at least. But human beings continue to suffer and die from causes that can be and should be controlled.

At the present time, especially, wise counsel and forceful direction are required if the many agencies at work are to be correlated and guided into safe constructive channels. Whether the methods employed be legislative or purely educational, intelligent, aggressive leadership, for which the physician is best qualified by training and experience, is indispensable.

Without specific mention, it may be stressed once again that issues of tremendous importance are developing and multiplying in California from day to day. The very life of the profession is in the balance. Opportunity for service is great; the need is urgent; the cause is incomparably worthy. The policy adopted by the individual physician will go far to determine the result.

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